Theme Area:	Water Resources
Program Area:	Lower Colorado Region
Project No.:	WR00.17
Project Title:	Laser Mapping Techniques with Airborne GPS Control
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Abstract: Lidar (light detection and range [position]) systems are active remote sensing systems that use pulses of laser light to illuminate the terrain, then measure and record the 'reflection' of returned laser light. Hydrologic models used by the Bureau for ecological and water resource studies in the California Delta require high resolution and verifiable elevation data. Digital Elevation Models (DEM) with 10 meter postings currently available for the study site do not have the resolution needed for Reclamation's hydrologic models. The objective of this research is to determine whether Lidar data can be used as a cost-effective alternative to produce high resolution elevation data at a level of accuracy sufficient for use in hydrologic-related studies in the California Delta. Lidar is a relatively new and untested technology in many environments. The authors of this proposal are aware of other similar Lidar projects currently being conducted in the Bureau and believe that results of this project will complement other studies, in that each study is being conducted in a unique environment which presents its own set of unique problems. Project objectives will be met by acquiring Lidar data of the study site, evaluating the data for positional and elevation accuracy, and testing the data in hydrologic studies for modeling water transport volumes in canals and innundation from levee breaches, calculation of levee heights, as well as ongoing land subsidence studies. A portion of the project will be funded by Reclamation's Mid-Pacific's Regional Office.